

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

OFFICIAL

ELECTRION, INC.1022 Frederick Rd.
Meadowbrook, PA. 19046RECEIVED
CENTRAL FAX CENTER
JUN 29 2004FAX: 703 - 872 - 9327 (tel.) 703-308-0424TO: Mr. Frank VANAMAN, Examiner at PTOFROM: JOSEPH KEJHADATE: 6-29-2004 ; (30) PAGES TOTALSUBJECT: APPLICATION OF JOSEPH B. KEJHA# 09/350,713 (DRAFT) AMENDMENT
(ONLY)

Dear Mr. Vanaman,

Please find enclosed the Draft of
my Amendment as we discussed,
(29) Pages.This is a Draft only, and anything
can be changed, including text
of the Remarks etc.

I welcome your input and corrections.

We can correct it over the phone.

My cell # is 267-334-3155.

Feel free to call me anytime.

Sincerely, *Joseph B. Kejha*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

RECEIVED
CENTRAL FAX CENTER
JUN 29 2004

In re Application of
JOSEPH B. KEJHA
Serial No.: 09 / 350,713
Filed : July 9, 1999
Title : Hydrogen-Electric Hybrid
Vehicle Construction

Art Unit 3611
Examiner P. Vanaman

OFFICIAL

AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22313-1450

Meadowbrook, PA
June 4, 2004

Sir :

In the above matter, in response to the Examiner's action of April 20, 2004
(three months reply period) applicant responds as follows :

CLAIM AMENDMENTS

Claim 1

Line 11, after "vehicle" delete ", which does not have said electric propulsion system".

Claim 2

Line 13, after "vehicle" delete ", which does not have said electric propulsion system".

Claim 3

Line 14, after " vehicle" delete ", which does not have said electric propulsion system".

Claim 6

Cancel claim 6

-/-

Claim 11

Line 1, after "claims" delete "4, or 5, or 6".

Line 1, after "or 10," insert - or 31, or 32, -.

Claim 26

Cancel claim 26

Claim 27

Line 1, after "in" delete "claim 1, or 3," and insert -claims-.

Claim 28

Cancel claim 28

Claims 31-38

Add new claims 31-38 below.

Claim 1 (currently amended) :

Electric vehicle construction which includes a body for carrying at least one passenger and an electric propulsion system with at least one electric motor, at least one battery, at least one electric current generator for charging said battery and/or powering said electric motor, and which is driven by at least one internal combustion engine, and a hydrogen storage system having hydrogen therein, attached to said body, and which body rides on at least two wheels with a steering system attached to said body, the improvement wherein said engine is open to air combustion engine and is fueled only by said hydrogen, and which results in non-polluting, longer range vehicle than internal combustion-only hydrogen fueled vehicle, ~~which does not have said electric propulsion system.~~

Claim 2 (currently amended) :

Electric vehicle construction which includes a body for carrying at least one passenger and an electric propulsion system with at least one electric motor, at least one battery, at least one electric current generator for charging said battery, and/or powering said electric motor, and which is driven by at least one internal combustion engine, and a hydrogen generating cell having hydrogen therein, attached to said body, and which body rides on at least two wheels with a steering system attached to said body, the improvement wherein said engine is an open to air combustion engine and is fueled only by hydrogen which is produced by electrolysis of water in said hydrogen generating cell, said cell is electrically connected to said generator and also to said battery, the hydrogen is not stored under pressure and is immediately consumed by said engine, and which results in non-polluting, longer range vehicle than internal combustion-only hydrogen fueled vehicle, ~~which does not have said electric propulsion system.~~

Claim 3 (currently amended) :

Electric vehicle construction which includes a body for carrying at least one passenger and electric propulsion system with at least one electric motor, at least one battery, at least one electric current generator for charging said battery and/or powering said electric motor, and which is driven by at least one internal combustion engine, a hydrogen storage system having hydrogen therein, and having a hydrogen generating cell which generates hydrogen by electrolysis of water, attached to said body, and which body rides on at least two wheels with a steering system attached to said body, the improvement wherein said engine is an open to air combustion engine and is fueled only by the hydrogen, the hydrogen being supplied from said storage system and from said hydrogen generating cell, said cell is electrically connected to said generator, and said cell is also electrically connected to said battery, and which results in non-polluting, longer range vehicle than internal combustion-only hydrogen fueled vehicle. ~~which does not have said electric propulsion system.~~

Claim 4 (original) :

Electric vehicle construction as described in claims 1 or 3 wherein said hydrogen storage system contains carbon graphite as a storage medium and absorbent/desorbent.

Claim 5 (previously amended)

Electric vehicle construction as described in claims 1 or 3 wherein said hydrogen storage system contains metal hydride as a storage medium and absorbent/desorbent.

Claim 6 (canceled)

Claim 7 (canceled)

Claim 8 (canceled)

Claim 9 (original) :

Electric vehicle construction which includes a body for carrying at least one passenger and an electric propulsion system with at least one electric motor, at least one battery, at least one electricity generating fuel cell system for charging said battery and/or powering said motor, and a hydrogen storage system attached to said body, and which body rides on at least two wheels with a steering system attached to said body, the improvements wherein said hydrogen storage system contains a mixture of carbon graphite, mesocarbon microbeads and metal hydride as a storage medium and absorbent/desorbent.

Claim 10 (original):

Electric vehicle construction which includes a body for carrying at least one passenger and an electric propulsion system with at least one electric motor, at least one electricity generating fuel cell system for powering said motor, and a hydrogen storage system attached to said body, and which body rides on at least two wheels with a steering system attached to said body, the improvement wherein said hydrogen storage system contains a mixture of carbon graphite, mesocarbon microbeads and metal hydride as a storage medium and absorbent/desorbent.

Claim 11 (currently amended):

Electric vehicle construction as described in claims 9, or 10, or 31 or 32, which additionally includes at least one hydrogen generating electrolyzer having hydrogen therein, attached to said body, and said electrolyzer is also electrically connectable to an electric power source outside of the vehicle, and the hydrogen is stored in said hydrogen storage system at low pressure.

Claim 12 (withdrawn):

Electric vehicle construction which includes a body for carrying at least two passengers, and an electric propulsion system with battery packs attached to said body, and which body is riding on at least three wheels with a steering system attached to said body, and said body has substantially symmetrical shape, has imaginary longitudinal center line and line of symmetry, and said body includes upper and lower sides, front top of sides, front, rear, top and bottom, the improvement wherein said passengers are seated in a tandem configuration, substantially on said imaginary longitudinal center line and line of symmetry of said body, and said battery packs are removable and are located in compartments on each said lower side of said body, external to said passengers and lengthwise between said wheels.

Claim 13 (withdrawn):

Electric vehicle construction as described in claim 12, which has two rear wheels close to said longitudinal center line and line of symmetry, said wheels have their traction width narrower than the space between said battery packs and said battery packs are removable from the rear of said vehicle.

Claim 14 (withdrawn):

Electric vehicle construction as described in claim 12, wherein the vehicle includes at least one additional battery pack carried in said vehicle body front and in front of said passengers.

Claim 15 (withdrawn):

Electric vehicle construction as described in claim 12 or 14, wherein at least one of said batteries is replaced with at least one electricity generating fuel cell system.

Claim 16 (withdrawn):

Electric vehicle construction as described in claim 12, which is provided with at least one additional non-electric propulsion system attached to said body, in which said additional propulsion system includes at least one open to air combustion engine with at least one generator for charging said batteries and/or powering said electric motor.

Claim 17 (withdrawn):

Electric vehicle construction as described in claim 12, which is provided with at least one additional non-electric propulsion system attached to said body, in which said additional propulsion system includes at least one open to air combustion engine which is driving at least one of said wheels through a clutch and a reduction drive.

Claim 18 (withdrawn):

Electric vehicle construction as described in claim 12, which is provided with at least one additional non-electric propulsion system attached to said body, in which said additional propulsion system includes at least one open to air combustion engine with at least one generator for charging said batteries and/or powering said electric motor, and said engine is driving at least one of said wheels through a clutch and a reduction drive.

Claim 19 (withdrawn):

Electric vehicle construction as described in claims 16 or 18, in which said electric current generator is replaced with at least one electricity generating fuel cell system.

Claim 20 (withdrawn):

Electric vehicle construction as described in claim 12, in which said batteries are lithium rechargeable batteries.

Claim 21 (withdrawn):

Electric vehicle construction as described in claim 12, in which said batteries are hydrogen rechargeable batteries.

Claim 22 (withdrawn):

Electric vehicle construction which includes a body, said body includes a body frame with body panels attached to said frame, said frame is substantially of magnesium alloy and is formed of plurality of extrusions bonded together with aid of end fittings and an adhesive.

Claim 23 (withdrawn):

Electric vehicle construction as described in claim 22, in which said body panels are substantially of composite sandwich construction having ultrahigh molecular weight polyethylene fibers embedded in resin skins.

Claim 24 (withdrawn):

Electric vehicle construction as described in claim 12, in which said electric propulsion system includes at least one electric motor and said motor includes a disc armature.

Claim 25 (withdrawn):

Electric vehicle construction which includes side windows, front and front top of the sides of the vehicle, wherein passengers sit in tandem configuration, said vehicle is riding on at least three wheels and is provided with rear view mirrors which are recessed in said front top of the sides of said vehicle, and said mirrors are streamlined with said front of the vehicle and are outside of said side windows.

Claim 26 (canceled)

Claim 27 (currently amended)

Electric vehicle construction as described in claims ~~1, or 2,~~
~~or~~ 9, or 10, wherein said hydrogen storage system includes
at least one hydrogen generating reactor, which reactor produces
hydrogen by reaction of a metal catalyst in contact with a solution
of sodium borohydride in water.

Claim 28 (canceled)

Claim 29 (previously presented) :

Electric vehicle construction which includes a body for carrying at least one passenger
and an electric propulsion system with at least one electric motor, at least one battery, at
least one electricity generating fuel cell system for charging said battery and/or powering
said motor, and a hydrogen generating reactor system attached to said body, and which
body rides on at least two wheels with a steering system attached to said body, the
improvement wherein said reactor produces hydrogen by reaction of a metal catalyst in
contact with a solution of sodium borohydride in water.

- // -

Claim 30 (previously presented) :

Electric vehicle construction which includes a body for carrying at least one passenger and an electric propulsion system with at least one electric motor, at least one electricity generating fuel-cell system for powering said motor, and a hydrogen generating reactor system attached to said body, and which body rides on at least two wheels with a steering system attached to said body, the improvement wherein said reactor produces hydrogen by reaction of a metal catalyst in contact with a solution of sodium borohydride in water.

Claim 31 (new) :

Electric vehicle construction which includes a body for carrying at least one passenger and an electric propulsion system with at least one electric motor, at least one battery, at least one electric current generator for charging said battery and/or powering said electric motor, and which is driven by at least one internal combustion engine, and a hydrogen storage system having hydrogen therein, attached to said body, and which body rides on at least two wheels with a steering system attached to said body, the improvement wherein said engine is open to air combustion engine and is fueled only by said hydrogen, and which results in non-polluting, longer range vehicle than internal combustion-only hydrogen fueled vehicle, and wherein said hydrogen storage system contains a mixture of carbon graphite, mesocarbon microbeads and metal hydride as a storage medium and absorbent/desorbent.

Claim 32 (new):-

Electric vehicle construction which includes a body for carrying at least one passenger and electric propulsion system with at least one electric motor, at least one battery, at least one electric current generator for charging said battery and/or powering said electric motor, and which is driven by at least one internal combustion engine, a hydrogen storage system having hydrogen therein, and having a hydrogen generating cell which generates hydrogen by electrolysis of water, attached to said body, and which body rides on at least two wheels with a steering system attached to said body, the improvement wherein said engine is an open to air combustion engine and is fueled only by the hydrogen, the hydrogen being supplied from said storage system and from said hydrogen generating cell, said cell is electrically connected to said generator, and said cell is also electrically connected to said battery, and which results in non-polluting, longer range vehicle than internal combustion-only hydrogen fueled vehicle, and

wherein said hydrogen storage system contains a mixture of carbon graphite, mesocarbon microbeads and metal hydride as a storage medium and absorbent/desorbent.

Claim 33 (new):-

Electric vehicle construction which includes a body for carrying at least one passenger and an electric propulsion system with at least one electric motor, at least one battery, at least one electric current generator for charging said battery and/or powering said electric motor, and which is driven by at least one internal

combustion engine, and a hydrogen storage system having hydrogen therein, attached to said body, and which body rides on at least two wheels with a steering system attached to said body, the improvement wherein said engine is open to air combustion engine and is fueled only by said hydrogen, and which results in non-polluting, longer range vehicle than internal combustion-only hydrogen fueled vehicle, and

in which said internal combustion engine includes at least one intake port and at least one exhaust port and at least one cooled partial return of exhaust gases including water from said exhaust port into said intake port through connecting means.

Claim 34 (new):

Electric vehicle construction which includes a body for carrying at least one passenger and an electric propulsion system with at least one electric motor, at least one battery, at least one electric current generator for charging said battery, and / or powering said electric motor, and which is driven by at least one internal combustion engine, and a hydrogen generating cell having hydrogen therein, attached to said body, and which body rides on at least two wheels with a steering system attached to said body, the improvement wherein said engine is an open to air combustion engine and is fueled only by hydrogen which is produced by electrolysis of water in said hydrogen generating cell, said cell is electrically connected to said generator and also to said battery, the hydrogen is not stored under pressure and is immediately consumed by said engine, and which results in non-polluting, longer range vehicle than internal combustion-only hydrogen fueled vehicle, and

in which said internal combustion engine includes at least one intake port and at least one exhaust port and at least one cooled partial return of exhaust gases including water from said exhaust port into said intake port through connecting means.

Claim 35 (new):

Electric vehicle construction which includes a body for carrying at least one passenger and electric propulsion system with at least one electric motor, at least one battery, at least one electric current generator for charging said battery and/or powering said electric motor, and which is driven by at least one internal combustion engine, a hydrogen storage system having hydrogen therein, and having a hydrogen generating cell which generates hydrogen by electrolysis of water, attached to said body, and which body rides on at least two wheels with a steering system attached to said body, the improvement wherein said engine is an open to air combustion engine and is fueled only by the hydrogen, the hydrogen being supplied from said storage system and from said hydrogen generating cell, said cell is electrically connected to said generator, and said cell is also electrically connected to said battery, and which results in non-polluting, longer range vehicle than internal combustion-only hydrogen fueled vehicle, and

in which said internal combustion engine includes at least one intake port and at least one exhaust port and at least one cooled partial return of exhaust gases including water from said exhaust port into said intake port through connecting means.

Claim 36 (new):

Electric vehicle construction which includes a body for carrying at least one passenger and an electric propulsion system with at least one electric motor, at least one battery, at least one electric current generator for charging said battery and/or powering said electric motor, and which is driven by at least one internal combustion engine, and a hydrogen storage system having hydrogen therein, attached to said body, and which body rides on at least two wheels with a steering system attached to said body, the improvement wherein said engine is open to air combustion engine and is fueled only by said hydrogen, and which results in non-polluting, longer range vehicle than internal combustion-only hydrogen fueled vehicle .and

wherein said hydrogen storage system includes at least one hydrogen generating reactor, which reactor produces hydrogen by reaction of a metal catalyst in contact with a solution of sodium borohydride in water.

Claim 37 (new):

Electric vehicle construction which includes a body for carrying at least one passenger and electric propulsion system with at least one electric motor, at least one battery, at least one electric current generator for charging said battery and/or powering said electric motor, and which is driven by at least one internal

combustion engine, a hydrogen storage system having hydrogen therein, and having a hydrogen generating cell which generates hydrogen by electrolysis of water, attached to said body, and which body rides on at least two wheels with a steering system attached to said body, the improvement wherein said engine is an open to air combustion engine and is fueled only by the hydrogen, the hydrogen being supplied from said storage system and from said hydrogen generating cell, said cell is electrically connected to said generator, and said cell is also electrically connected to said battery, and which results in non-polluting, longer range vehicle than internal combustion-only hydrogen fueled vehicle . and wherein said hydrogen storage system includes at least one hydrogen generating reactor, which reactor produces hydrogen by reaction of a metal catalyst in contact with a solution of sodium borohydride in water.

Claim 38 (new):

Electric vehicle construction which includes a body for carrying at least one passenger and electric propulsion system with at least one electric motor, at least one battery, at least one electric current generator for charging said battery and/or powering said electric motor, and which is driven by at least one internal combustion engine, a hydrogen storage system having hydrogen therein, and having a hydrogen generating cell which generates hydrogen by electrolysis of water, attached to said body, and which body rides on at least two wheels with a steering system attached to said body, the improvement wherein

said engine is an open to air combustion engine and is fueled only by the hydrogen, the hydrogen being supplied from said storage system and from said hydrogen generating cell, said cell is electrically connected to said generator, and said cell is also electrically connected to said battery, and which results in non-polluting, longer range vehicle than internal combustion-only hydrogen fueled vehicle, and

wherein said hydrogen storage system, contains metal hydride as a storage medium and absorbent/desorbent, and in which said hydrogen generating cell having hydrogen therein is also electrically connectable to an electric power source outside of the vehicle, and the hydrogen is stored in said hydrogen storage system at low pressure;

REMARKS

The claims have been carefully reviewed in light of the Examiner's action.

Allowance of claims 9, 10, 27/9 and 27/10 is gratefully noted.

After a personal interview with the Examiner on May 11, 2004 , claims 6 and 26 have been rewritten and combined with claims 1, 2 and 3, as new independent claims 31- 35, as requested by the Examiner. (Claim 6 was combined with 1 and 3 into 31 and 32 ; and claim 26 was combined with 1,2, and 3 into 33, 34, and 35).

It was also agreed during the interview to remove from claims 1,2, and 3 the last sentence : " ,which does not have said electric propulsion system." , as unnecessary.

After applicant's explanation of the differences between the instant invention as claimed in claims 27/1 , 27/3 , 29 and 30, and the prior art, the Examiner agreed to reconsider their rejection. Applicant's written, detailed explanation is in Items 8, 9 and 13 below. Claims 27/1, and 27/3 were similarly rewritten and combined into new independent claims 36 and 37.

Claim 11 has been corrected to eliminate the improper multiple dependency, and now is properly dependent on independent claims 9, 10 , and new independent claims 31 and 32, which the Examiner indicated would be allowable. Similarly, to eliminate the improper multiple dependency, claim 28 was canceled and rewritten as new independent claim 38, combining former claims 3, 5 and corrected claim 28. Applicant's explanation is in Item 2 below.

During the interview the Examiner encouraged applicant to provide a better explanation of rejected claims 1-3 in regard to non-obviousness of the invention,

which may result in the Examiner's reconsideration and their allowance.

Therefore, the more detailed explanation is in Items 5 and 13. No new matter has been added.

Before taking up the claims in detail, attention will be given to the prior art patents, cited by the Examiner.

Item 2

Claim 11 has been corrected, and claim 28 has been canceled and rewritten as new independent claim 38, to eliminate the improper multiple dependency of both claims, as described above.

The major difference from the prior art patent of Tangri (US 4,085,709) is in the low pressure of the whole system, comprising electrolyzer and hydrogen storage. Hydrogen goes directly from the electrolyzer into the metal hydride, or into a mixture of metal hydride, graphite and MCMBs at low pressure, without using the prior art bulky and unsafe compression system. Applicant's static system is smaller, safer, simpler, ^{*quiet*} and longer lasting, due to no moving parts. Only former claim 5 is incorporated into claim 38, to eliminate the improper multiple dependency, and to differentiate from claim 11, and because claim 5 was previously included in former claim 28. No new matter has been added, and both claims are fully supported by the Specification, Pages 32-35, and Fig. 25. Tangri, West and Munday (as in Item 5) do not suggest the system or vehicles of applicant as claimed. Therefore, the Examiner is requested to consider these claims for allowance.

Item 3

Claims 1-6, 26 and 27 have been corrected, or rewritten as new claims 31-37.

The last sentence in claims 1-3 : " ,which does not have said electric propulsion system" was removed as unnecessary, after discussion with the Examiner.

Applicant added this sentence previously only after the Examiner's request in his prior action of June 18, 2003, page 2, Item 2, lines 1-6.

Item 5

Claims 1-3 were rejected by the Examiner as unpatentable, as an obvious combination of the two prior art patents of West (US 3,517,766) and Munday (US 5,143,025). The Examiner also stated, that it would be obvious to allow selective connection of the hydrogen generating cell of Munday to the electric generators of West, instead of Munday's battery. However, this would not apply to the rejection of claim 1, which does not include any hydrogen generating cell. Additionally, claim 3 includes two hydrogen sources in parallel, which is not in the prior art. (See Specification, page 32, lines 7-9).

As per claims 1-3 , the Examiner's examples of prior court decisions (Page 8), showing that a specific combination of prior art need not be suggested on the record is noted, but is respectfully disagreed with.

Applicant had shown just the opposite examples of court decisions in his Amendments of September 18, 2003 (Page 17), and of May 30, 2001 (Pages 11-12).

Therefore applicant believes, that the arguments in his Amendment of September 18 2003, Pages 10,11,16 and 17 should stand.

No one has suggested or built the vehicles of applicant as claimed in claims 1-3

prior to, or at the time of the invention on January 27, 1992 and/or January 17, 1995.

Even today, a long range hydrogen fueled vehicle, equivalent in the range to gasoline fueled vehicle does not exist. Not even today's fuel cell vehicles have the same range as gasoline vehicles.

This invention is not just about a combination of two prior art patents, but it is about long range hydrogen fueled vehicle, as described and claimed.

(See Specification page 29, lines 9-25).

This combination is for the purpose of the long range hydrogen fueled vehicle with internal combustion engine. (Clean exhaust is the only known result).

The prior applicant's Application # 08/950,445 was rejected, because the longer range was not claimed. Therefore, now in this Application it is claimed.

At the time of the invention, parallel hybrid electric vehicles (HEVs), known since early 1900, were built only for the purpose of helping the low torque of early gasoline engines, and did not have the generator, just a battery.

Later-- series HEVs were built only for the purpose of extending the range of a battery-operated electric vehicle (like West), by charging the battery by a generator.

At the time of the invention, HEVs were not built for the purpose of extending the range of hydrogen fueled vehicle (like vehicle of Munday), as described in the Specification, Page 29, lines 9-25.

Therefore, at the time of the invention it was not obvious, and at the time of the invention it was an unexpected result.

At the time of the invention, it was not known, that the range of any hydrogen fueled vehicle with internal combustion engine can be extended by series electric hybrid configuration, as described and claimed.

(Series electric hybrid is understood as having separate electric motor(s) and electric generator(s), not electric motor/generator(s) in one unit(s), having both functions, in parallel with the engine.)

At the time of the invention this knowledge was not available to anyone in the art. If it was available, someone would have built or suggested such vehicle, because it would fulfill the decades long felt need for a long range non-polluting vehicle, having equivalent or competitive range to gasoline fueled vehicles, and additionally freeing our country from imported oil.

The Examiner did not and could not provide any evidence of such knowledge. Therefore, applicant believes, that claims 1-3 should be allowed.

Items 6 & 7

Applicant agrees with the Examiner, that carbon graphite and metal hydride are known hydrogen absorbents, but believes that claims 4 and 5 should be allowed, if claims 1 and 3 are allowed, because they depend on claims 1 and 3 with all of their limitations.

Item 8

Applicant defends the claims 27/1 and 27/3, now rewritten as new independent claims 36 and 37, as described in his prior Amendment of September 18, 2003.

page 14, Item 12, and still believes that the Examiner misunderstood the principle of the invention.

The Examiner's references to West, Munday, Kerrebrock et al. (US 5,372,617) and Gallagher (US 3,895,102) are in error.

West and Munday are discussed in Item 5, but a major difference in claims 36 and 37 is in the hydrogen generator principle and Gallagher's use of catalyst.

First, Kerrebrock et al. uses reaction of sodium borohydride and water to produce hydrogen. Kerrebrock exposes sodium borohydride to water.

Applicant does not use this reaction to produce hydrogen. Applicant slowly dissolves sodium borohydride in water. For example 20 % of NaBH₄ by weight. When dissolved in water, a mild reaction occurs, which creates a small amount of heat and some hydrogen. Most of the NaBH₄ stays dissolved in water, non-reacted. This solution is non-flammable and therefore safe in a vehicle, and has the energy density of gasoline.

Applicant uses this solution to be exposed to a metal catalyst (or vice versa), such as ruthenium, to trigger the reaction releasing a large quantity of hydrogen (H₂), on demand only. Applicant's metal catalyst is not consumed, and can be used over and over with a new solution, unlike Gallagher's catalyst with reagent, which is consumed and discarded.

Applicant produces hydrogen in two steps:

1. First he makes a safe solution of sodium borohydride in water.
2. Then contacts this solution with a metal catalyst, which contact releases the hydrogen, the resulting byproduct being only borax soap in water.

Kerrebrock produces hydrogen in one step, even if combined with the catalyst of Gallager. The major difference is in applicant's hydrogen safe storage, and in the use of a catalyst.

Applicant does not control the rate of generation of hydrogen by the catalyst, as the Examiner stated. Applicant controls the rate of generation by the amount of the solution allowed to contact the catalyst in the modified Kipp reactor, as described in the Specification (Page 24, lines 2-14, and Fig. 16A), i.e. by the valve 169. Applicant does not use nor claim any electric power usage for his reaction. In any case, none of the references cited by the Examiner suggest the combination and result, or invention of applicant as claimed. Applicant therefore believes, that claims 36 and 37 with all of their limitations should be allowed.

Item 9

Applicant defends claims 29 and 30 the way as in Item 8, except they are directed to fuel cell vehicles, and believes that they should be allowed, as they are supported by the Specification.

Item 10

Applicant's Application # 08/950,445 was rejected and an Appeal to Federal District Court was also rejected. Consequently, Application # 08/950,445 is abandoned. Therefore the double patenting rejection is no more an issue.

Item 12

Claims 6 and 26 have been rewritten as new claims 31-35, as discussed with the Examiner and described on page 19 of this Amendment.

Item 13

In response to the Examiner's notes directed to claims 1-3, in the Examiner's Action of June 18, 2003, page 3, line 15, the Examiner mentioned "a vehicle having constituent drive elements of smaller capacity", suggesting that such vehicle would have a shorter range, than a vehicle with large capacity elements. Although the Examiner did not specifically wrote the words "less fuel", applicant inquired: "how can a vehicle with smaller capacity drive elements have a shorter range, if it consumes less fuel?"

In response to the unexpected results achieved, the Examiner stated that applicant's arguments can not take the place of evidence. However, in this case it is so simple, that the evidence is selfevident, and any "measurements" are not necessary. After reading applicant's disclosure, it is selfevident to any engineer or any person skilled in the art, that a smaller engine consumes less hydrogen, than a large engine, and thus results in a longer range of the vehicle, on the same amount of hydrogen.

Applicant's electric hybrids as claimed, permit the use of a smaller engine.

An actual example of achievable mileage range is given in the Specification, page 29, line 25, when a 3x smaller engine is used, as compared to a standard

size engine required to drive a given vehicle. For the sake of clarity, additional explanation of the applicant's vehicle range, as compared to other prior art zero emissions vehicles is also given in the Secondary Considerations Letter of applicant, filed on July 12, 2003 at the PTO, which is incorporated herein.

According to the Examiner's arguments in pages 7 and 8 of the Action, any suggestion in the prior art references to combine those references is not necessary, based on the examples of prior court decisions. Applicant provided just the opposite examples of prior court decisions in this matter, in applicant's prior Amendments of September 18, 2003, page 17, and of May 30, 2001, pages 11-12. Additionally, applicant's invention is directed to a new purpose and/or a new application, never mentioned anywhere in the prior art.

According to the Examiner's present view, any new combination of prior art, not suggested nor built anywhere, even if made for a different purpose and for a new application, is not patentable.

This conclusion is not correct, and the Examiner is respectfully requested to reconsider his rejection and allow claims 1-3.

As regards the Examiner's references to Kerrebrock at al. and Gallager, the differences in applicant's invention and the above mentioned prior art are explained in Item 8. Major differences are in safety and the use of a catalyst: Kerrebrock's sodium borohydride powder is very flammable and dangerous when exposed to air, which is well known. Applicant's solution of sodium borohydride in water is non-flammable in air and therefore safe. Gallager's metal

catalyst in ferrosilicon is consumed by the reaction and discarded. Applicant's metal catalyst is not consumed and may be used over and over with a fresh solution. The proof is in well known fact, that metals, such as ruthenium are not soluble in water, and that the borax (sodium boroxide) as described compound, does not contain any ruthenium or other metal catalyst in its formula.

How to make the solution is not described, nor claimed, because it is not beyond the skill of an ordinary artisan to dissolve a salt in water.

Applicant does not claim how to make the solution, but claims its use in combination with a metal catalyst, and hybrid - electric vehicle or fuel cell (FC) vehicle, as supported by the Specification, page 26, lines 2-14.

Therefore the Examiner is respectfully requested to reconsider the rejection of claims 27/1, 27/3 (now new claims 36, 37), 29 and 30, on the merit of applicant's hydrogen generator principle in combination with HEVs and FC vehicles, and allow them.

Item 14

Applicant has corrected claim 11 and rewritten claim 28 as new claim 38, as explained in Item 2, to eliminate the improper multidependency. No new combination or new matter was added. Claim 38 (28) was narrowed.

It is believed, that all the claims in this Amendment define new and unobvious matter. Accordingly, it is believed, that the Amendment places the Application in condition for allowance and such action is requested and urged.

Respectfully submitted,

Joseph B. Kejha
(applicant)